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UDC: 681,325.3

KHOLKIN, I. I., NOVICHKOV, Y. S. KASHITSYN, Ye. M.

"On Improving the Dynamic Properties of Frequency-Code Converters Which Measure Signals from Differential String Pickups"

Tr. Ryazansk. radiotekhn. in-ta (Works of the Ryazan Radio Engineering Institute), 1970, vyp. 18, pp 93-96 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 70, Abstract No 11a173)

Translation: An effective means for reducing dynamic errors of frequency-code converters for string pickups of the differential type is multiplication of the frequencies to be measured. A digital two-channel device for multiplication of pulse-frequency signals is considered which is based on the principle of filling the period of the frequency to be converted. The device was used in a self-adaptive smoothing converter which measured frequency signals from precision differential string accelerometers. Two illustrations, bibliography of three titles. V. M.

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- 39 -

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"

USSR

UDC 681.332.65

ANISIMOV, D. V., NOVICHKOV, Yu. A.

"Pulse Synchronizer"

USSR Author's Certificate No. 275121, Filed 18/02/69, Published 6/10/70 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No. 5, 1971, Abstract No. 5B229P).

Translation: Synchronizers are made of circuits in which the operating pulse (P) to be synchronized is distributed into two memory positions (MP), controlled by cycles (C) shifted by one period. In this case, the external (P) must be written in one of the positions if it corresponds with the synchronization C, or in both positions if it does not, and is correspondingly related to one or two C and then to the required C. The output of such a circuit must use a regenerative Kipp relay circuit, which absorbs one of the two P when the working P is recorded in both positions. This is done by using the insensitivity of the Kipp relay during the regenerative process. Circuits based on the principle of dividing a signal into positions with an output consisting of a Kipp relay perform the tasks assigned them but require a large number of elements and 2C, which complicates the circuit. In order to simplify the circuit and increase the reliability, the suggested synchronizer uses an MP based on a ferrite, the output of which is connected to the input of a Kipp oscillator. The output of the MP may carry either one of two P in response to the working P, but in the latter case the Kipp oscillator receives only one P. 1 fig.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"

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UDC 539.3:534.1

NOVICHKOV, YU. N. and PETROVSKIY, A. V. (Moscow)

"The Stability of Multilayer Elastic Shells"

Moscow, Mekhanika Tverdogo Tela, No 5, 1973, pp 54-61

Abstract: Equations of neutral equilibrium are derived for multilayer elastic shells. The local stability loss of multilayer round cylindrical shells is investigated for axial compression and external uniform pressure. The spectra of bifurcational values of the loads are found for both kinds of loading, and their relationship to the wave number in the longitudinal direction and to the number of waves in the circumferential direction is studied. An analysis is made of the change of the nature of the loss of stability in relation to change of the elastic properties of the shell layers. 5 figures. 12 references.

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Composite Materials

USSR

UDC: 678.5.06:624.074.4

NOVICHKOV. YU. N. and SINITSYN, YE. N., Central Aerodynamics Institute imeni Prof. N. Ye. Zhukovskiy, Moscow Oblast'; Moscow Power Engineering Institute

"Surface Buckling of a Laminated Medium"

Riga, Mekhanika Polimerov, No 4, Jul-Aug 73, pp 648-654

Abstract: The authors study the surface buckling of a medium reinforced by layers with an orthogonal positioning of the layers with respect to the surface. The study is based on Bolotin's theory of layered media. The critical load is determined and the nature of the stability losses studied. Using a simplified approach, simple engineering formulas are obtained for the critical loads which

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UNCLASSIFIED

TITLE—INFLUENCE OF HEAT TREATMENT ON THE SURFACE ALLOYED CASTINGS FROM STEEL 30L A.M., NOVICHKOVA, V.YA., AUTHOR—(04)—BELYATSKAYA, I.S., MIKHAYLOV, A.M., NOVICHKOVA, V.YA., SIDOKHIN, A.F. CQUNTRY OF INFO—USSR

SOURCE—IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(4), 163-6

DATE PUBLISHED———70

SUBJECT AREAS -- MATERIALS

TOPIC TAGS--CAST STEEL, ANNEALING, METAL NORMALIZING, X RAY SPECTRUM, METAL SURFACE PROPERTY, ALLOY PHASE TRANSFORMATION, CARBIDE PHASE, MICROHARDNESS, THERMAL STABILITY, SURFACE HARDENING, ALLOY ADDITIVE/(U)30L STEEL

CONTROL MARKING-NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--3005/0809

STEP NO--UR/0148/70/013/004/0163/0165

CIRC ACCESSION NO--ATO132904

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"

UNCLASSIFIED PROCESSING DATE--04DEC70 CIRC ACCESSION NO--AT0132904 ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE INFLUENCE OF ANNEALING AND NORMALIZING ON THE STRUCTURE AND THE PROPERTIES OF LAYERS OF CASTINGS FROM STEEL 301 WAS STUDIED. THE SAMPLES HERE HEATED IN A MUFFLE FURNACE TO 8000 DEGREES FOR 1.5 HR, AFTER WHICH THEY WERE COOLED IN THE FURNACE (ANNEALING), OR IN AIR (NORMALIZING). MICRO X RAY SPECTRAL ANAL. SHOWED THAT THE DISTRIBUTION OF THE ALLOYING ELEMENTS ALONG THE DEPTH OF THE LAYERS FOR ALL PRACTICAL PURPOSES DOES NOT CHANGE AS COMPARED TO THE DISTRIBUTION IN THE CAST STATE. THIS TREATMENT EXERTS THE LEAST EFFECT ON THE STRUCTURE OF MN ALLOYED LAYER. THE CHANGES OCCUR PRIMARILY IN THE TRANSITION ZONE BETWEEN THE LAYER AND THE MATRIX METAL. AFTER NORMALIZING, SECONDARY CARBIDES SEGREGATE IN THE DIFFUSION BAND, AND THE MICROHARDNESS OF THE AUSTENITE INCREASES TO 500-700 DX-MM PRIMEZ, APPARENTLY OWING TO PARTIAL MARTENSITIC TRANSFORMATION. AUSTENITE DENDRIETES WITH A MICROHARDNESS OF 300-20 KG-MM PRIME2 AND CARBIDE EUTECTIC REMAIN PRIMARILY IN THE CAST ZONE OF THE LAYER. THE MATRIX STEEL AT THE BOUNDARY WITH THE ALLOYED LAYER HAS A MARTENSITIC STRUCTURE WITH A MICROHARDNESS OF 650-700 KG-MM PRIME2 AND THAT OF TROOSTITE MARTENSITE. AFTER ANNEALING, THERE OCCURS PARTIAL PEARLITE TRANSFORMATION IN THE DIFFUSION BAND. THE MICROHARDNESS OF HTE PEARLITE PORTIONS AMTS. TO 280-380 KG-MM PRIM2, AND THAT OF THE AUSTENITIC PARTS TO 280-300 KG-MM PRIME2. THE CARBIDE PHASE IN THE CAST STATE AND AFTER THERMAL TREATMENT IS A CARBIDE OF THE (FE, MN) SUB3 C TYPE, WITH A MICROHARDNESS OF 800-1100 KG-MM PRIMEZ.

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BUNITSKAYA, Ye. A., NOVIK, A. I., SMOLYAR, Yu. A., TUCHIN, R. D., FESHCHENKO, N. A., KHAZANOV, T. M. SMOLYAR, Yu. A., TUCHIN, R. D., FESHCHEN"Some Circuits for Temperature Compensation of AC Bridges"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 19-21 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 122351)

Translation: The authors discuss the general principles of temperature compensation of AC bridges. A simplified transformer bridge circuit with temperature compensation of the reference specimen is given by way of example. Two illustrations. N. S.

USSR

UDC: 539.4

NOVIK, F. S., KLYPIN, A. A., Moscow Polytechnic Institute, Moscow Aviation

"Concerning Correlations Between the Properties of Some Heat-Resistant Alloys"

Kiev, Problemy Prochnosti, No 9, Sep 72, pp 84-89

Abstract: Relations are found between the properties of various groups of heat-resistant alloys at room temperature and at elevated temperatures, and the results are generalized to show correlations between short-term and long--term strength. The initial data for the correlation analysis were taken from reference materials on three separate groups of alloys: eleven deformable nickel alloys, nine cast alloys, and eight grades of high-temperature steel. The mechanical properties of the alloys were compared at temperatures of 20, 700 and 800°C using the Minsk-22 computer. A linear correlation was found between the properties of the alloys, and particularly between short--term and long-term strength (up to 1000 hours) at room temperature and at elevated temperatures. A scheme is given for predicting hard-to-determine properties from the tensile properties of the materials determined at room temperature. Some linear regression equations are proposed for determining

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NOVIK, F. S., KLYPIN, A. A., Problemy Prochnosti, No 9, Sep 72, pp 84-89

long-term strength from data on short-term strength with a given reliable probability. An analysis of relations between especially long-term strength and short-term strength for certain of the alloys showed no linear correlation between these characteristics.

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UDC 669.018.44,669.018.2

KLYPIN, A. A., NOVIK, F. S., and NORISOVA, YE. S.

"Study of Correlations Between Mechanical Properties of Some Alloys"

V sb. Povysh. konstruktivn. prochnosti staley i splavov (Increasing the Structureal Strength of Steels and Alloys - Collection of Works), No 1, Moscow, 1970, pp 91-94 (from RZh-Hetallurgiya, No 3, Mar 71, Abstract No 31906 by

Translation: A "Minsk-22" computer was used for correlation analysis of the mechanical properties ($\mathcal{O}_{\mathrm{B}}, \mathcal{O}_{\mathrm{T}}, \mathcal{O}_{\mathrm{W}}, \mathcal{O}_{\mathrm{creep}}, \mathrm{E}, \mathcal{S}, \mathcal{V}, \quad \alpha_{\mathrm{H}}, \, \mathrm{HB},$

presence of absence of a linear correlation was judged from pair-correlation indicated properties, including between short-term strength at 20° C and the presence of a correlation is the possibility of predicting most properties from a certain number of characteristics which are the simplest to determine.

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UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--RELATION BETWEEN PHOTOVOLTAIC PROPERTIES AND THE STRUCTURE OF
EPITAXIAL ZINC TELLURIDE FILMS -U-

AUTHOR-(02)-IGNATYUK, V.A., NOVIK, F.T.

COUNTRY OF INFO--USSR

SOURCE-FIZ. TEKH. POLUPROV. 1970, 4(4), 815

DATE PUBLISHED ---- 70

SUBJECT AREAS -- PHYSICS, MATERIALS

TOPIC TAGS--CRYSTAL STRUCTURE, THIN FILM SEMICONDUCTOR, ZINC COMPOUND, TELLURIDE, EPITAXIAL GROWTH, CRYSTAL ORIENTATION, GAS ABSORPTION, OXYGEN, PHOTOELECTROMOTIVE FORCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--3004/0886

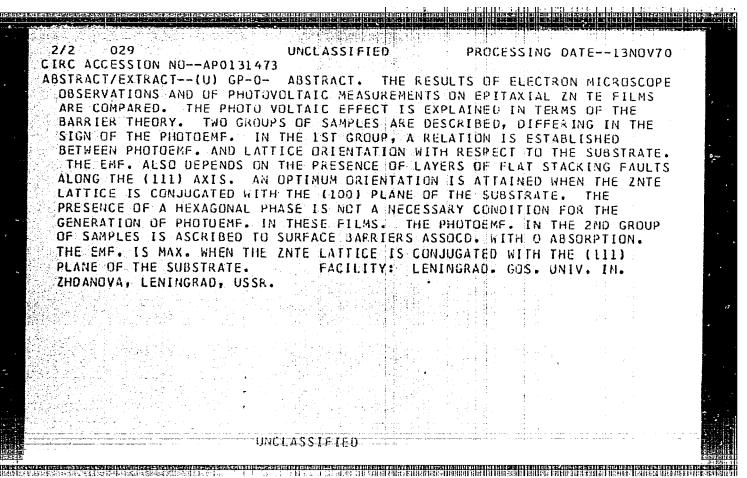
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CIRC ACCESSION NO--APOL31473

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UDC 621.315.592

IUNATYUK, V. A. and NOVIK, F. T., Leningrad State University Imeni A. A. Zhdenov

"An Investigation of the Photovoltaic Properties of Epitaxial Films of Zinc Telluride"

Fizika i Tekhnika Poluprovonikov, Vol. 4, No. 3, March 1970, pp. 472-477

Abstract: This report covers experimental work only. The authors deposited these films by vacuum sublimation on a variety of substrates, including cleavage surfaces of MaCl, KCl, KBr, LiF, CaF₂ and mica monocrystals, as well as glass plates. The angle of incidence of the molecular beam was 35-40°. In some cases, a supplementary beam of pure zinc or pure tellurium was used in addition to the zinc telluride beam. The films deposited were 0.1-0.3 micrometers thick.

All the platos showed a resistance of 10^8-10^3 ohms per square centimeter with the lower resistances found in films deposited at higher temperatures; the conductivity was always of the hole type. On films whose resistance was 10^{11} ohms per square centimeter or greater, photoemf was also observed. This was of two types, arbitrarily designated A and B. In the A type the end of the film furthest from the evaporator becomes negatively charged, while in the B type it is positively charged. This polarity is 1/5

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IGNATYUK, V. A., et al, Fizika i Tekhnika Poluprovonikov, Vol. 4, No. 3, March 1970, pp. 472-477

maintained even if the illumination comes through the substrate. The most important factor in determining whether an A or B type film is produced is the supplementary molecular beam: when it is mine, B type films are formed, when it is tellurium, A type. When neither is used, the films are basically type A. The material of the substrate is also important; many B type films are produced on the rock salt substrate without a supplementary beam.

The samples were subjected to a number of tests, producing the following results:

- 1) The A types samples had the higher emf, approximately 8 times that of the B type.
- 2) Their electrical properties were essentially identical, except for the difference in generated emf.
- 3) Their passive current/voltage characteristics were essentially linear in a range from -2 to +2 kilovolts.
- 4) The maximum photoemf occurs along a projection of the molecular beam line; measured in other directions, it follows an essentially cosine

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IGNATYUK, V. A., et al, Fizika, i Tekhnika Poluprovonikov, Vol. 4, No. 3, March 1970, pp. 472-477

5) At low light intensities the photoemf is directly proportional to incident light intensity, at higher intensities it is exponentially proportionate (fractional exponent), and beginning at approximately 2.104 lux it becomes logarithmically proportionate (light at all wave lengths).

6) In the range below n15 photons per square centimeter times second of monochromatic light, where the photoemf was directly proportional, the photoconductivity was found to be proportional to the square root of intensity.

7) The maximum of photoemf as a function of wave length occurs approximately in the interval from 500-530 nanometers, with the maximum for B type samples occurring towards the short wave end of this interval.

8) The distribution of photoconductivity with light wave length was found to be approximately the same as that of photoemf (measured in nonphotovoltaic samples).

9) The relationship of photoemf to the angle of light incidence is not solely proportional to illumination; if the plane of incidence passes through an angle of 90° with the projection of the molecular beam, then there is even a change in photoemf polarity, depending on the angle of illumination.

10) The use of plane polarized light produces somewhat different effects in A and B type samples. 3/5

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IGNATYUK, V. A., et al, Fizika i Tekhnika Poluprovonikov, Vol. 4, No. 5, March 1970, pp. 472-477

The authors believe that this last phenomenon indicates that the A type photoemf is due to photovoltaic elements located throughout the film, while the B type emf is due to photovoltaic elements located near the surface. This would make the A type photoemf more sensitive to changes in the polarity of light, which must pass through the anisotropic material to reach the photovoltaic elements. This theory was further tested by surface treatment of the samples, in which the following factors were found:

1) Exposure to oxygen reduces photoemf.

2) Exposure to humidity increases photoemf.

3) Exposure to low heat (up to 370 K) leads to some increase in photo-emf, but at higher temperatures a reduction in photoemf results.

4) Type B photoemf disappears more rapidly with heat.

5) The complete extinguishing of B type photoemf frequently leaves a weak residue of type A photoemf.

6) Heating the films in air leads to more complex, chemical transformations, including the oxidation of zinc and the liberation of free tellurium.

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IGNATYUK, V. A., et al, Fizika i Tekhnika Poluprovonikov, Vol. 4, No. 3, March 1970, pp. 472-477

The changes due to this last factor include the formation of oxide layers between the individual grains in the film, increasing resistance and improving the conditions for summation of emf from individual elements. In addition, new photovoltaic surface elements can be formed. Some of these changes are irreversible, some are reversible, being connected with the absorption and description of gases at the surface,

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UDC: None

IGNATYUK, V.A. and NOVIK, F.T.

"Connection of Photovoltaic Characteristics and Zinc Telluride Epitaxial Film Structure"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, p 815

Abstract: The results of electronographic investigations and photovoltaic measurements made on epitaxial zinc telluride films are compared. Two groups of specimens, differing in polarity of their acquired photo-emf, are considered. For the first group, a connection is established between the photo-emf and the crystal orientation relative to the substrate. For the second, a connection is established between the photo-emf and the surface barriers.

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HARRIE PROPERTY

UDC: None

DOLKART, V. M., KANEVSKIY, M. M., NOVIK, G. Kh., and STEPANOV, V. N. "Microprogram Processer"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obrastsy, tovarnyye znaki, No 4, 1973, p 112, No 363980

Translation: The item contains a memory and microcommand unit, a microcommand register, an address register, an arithmetic unit, a control and synchronization unit, distinguished in that, for the purpose of simplifying the processer, it contains a register of transition symbols as well as AND and OR circuits, with the input of each flip-flop of the register of transition symbols connected with the outputs of the AND circuits; the first inputs of the latter are connected with the corresponding digits of the microcommand register, the second inputs are connected with the single output of the flip-flop for the minor digit of the microcommand register, and the third inputs connected with the control and synchronization unit; the outputs of the transition symbol register flip-flops are connected with the first inputs of the AND circuits, the second inputs of which are connected with the control and synchronization unit, while the outputs are connected through the OR circuits with the inputs of the flipflops for the corresponding address register digits.

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VDC: 681.325.65

DOLKAR, V. M., NOVIK, G. Kh., STEPANOV, V. I., REDINA, S. F.

"A Pulse Shaper"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 12, Apr 71, Author's Certificate No 299957, Division H, filed 2 Apr 70, published 26 Mar 71, p 210

Translation: This Author's Certificate introduces a pulse shaper which contains two flip-flops and an AND-OR-NOT gate. As a distinguishing feature of the patent, pulses of constant length with a short delay are produced by connecting the set terminals of the flip-flops to the input of the device and to the first input of the first AND circuit in the gate. The second input of this AND circuit is connected to the one-output terminal of the first of the gate and the output of the device, while its zero-output terminal is terminal of the second flip-flop. The one-output AND circuit in the gate.

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UDC: 621.374.33

DOLKAR, V. M., NOVIK, G. Kh., REDINA, S. F., STEPANOV, V. N.

"A Pulse Shaper"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 12, Apr 71, Author's Certificate No 299959, Division H, filed 30 Jan 69, published 26 Mar 71, p 210

Translation: This Author's Certificate introduces a pulse shaper based on transistor-transistor logic elements and on a transistor with a timing capacitor connected to its base. Connected in the collector circuit are a resistor and a diode. The shaper also contains two feedback circuits. As a distinguishing feature of the patent, pulse rise and fall times are reduced for long pulses at the output by connecting the first feedback circuit between the collector of the transistor and the element connected to the timing capacitor, while the second feedback circuit is connected between the anode of the above-mentioned diode and the element connected to the shaper input.

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UDC 533.9.07

YEL YASHEVICH, H. A., Academician of the Belorussian SSR Academy of Sciences, LABUDA, A. A., MILLIAO, h. YA., MANTRASHEVICH, I. G., MAYIK G. M., BAKANOVICH, G. I., Belorussian State University iment V. I. Lenin, Physics Institute of the Belorussian SSL Academy of Sciences

"Generation of Nigh-Speed Plasma Fluxes by a Pulse Accelerator on the Basis of the Phenomenon of Alectric Detonation of Conductors and Dielectric Erosion"

Hinsk, Hoklady Akademii hauk BSSR, Vol XVI, No 2, 1972, pp 115-117

Abstract: A study was node of a pulse generator of a moving plasma created by electric determine of conductors of defined form in a bounded volume. The described plasma provider can operate in two versions — on the basis of cleatric derivative of conductors as a source of a metal plasma or using pulse surface discharge where the plasma is formed as a result of crossion of the generator perchanges on the and the electrodes. The described pulse plasma plasma force at an exact of incompletely expanded supersonic erosion plasma force at an exact pressure with given (as dynamic characteristics determined by the discharge conditions and parameters.

defined form under conditions of operating the places generator with an

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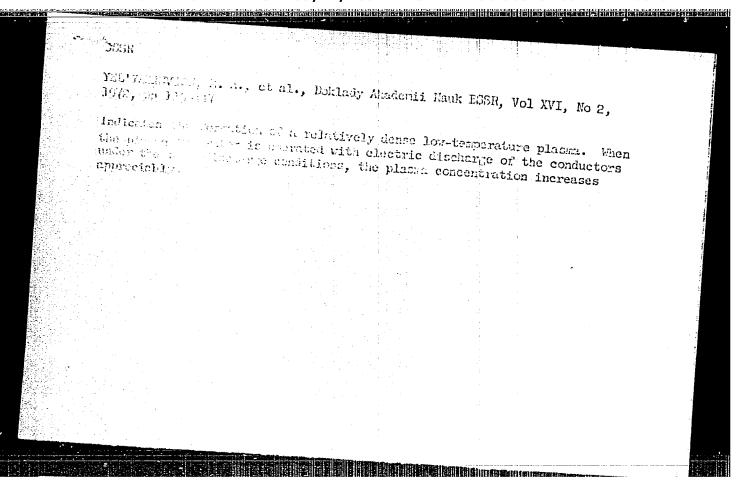
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YEL'YASHEVICH, M. A., et al., Doklady Akademii Nauk BSSR, Vol XVI, No 2, 1972, pp 115-117

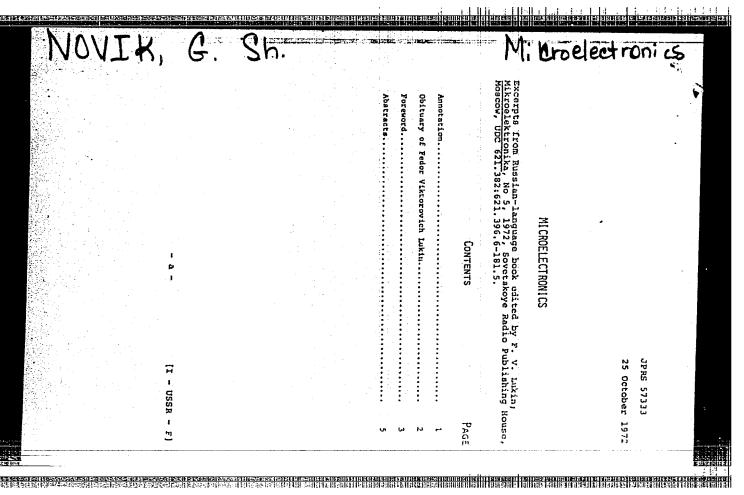
auxiliary gap introduced into the discharge chamber permitted flows of a lowtemperature metal plasma of any given chemical composition to be obtained with relatively high efficiency of utilization of the stored initial energy. The energy in the discharge gap for V=4 kilovolts and C=200 microfarads (mode I) was calculated from the current and voltage oscillograms as 1.3 kilojoules with an initial energy of 1.6 kilojoules. This essentially exceeds the energy contributed in the case of operating the generator with an external auxiliary gap (0.5 kilojoules). Optimization of the discharge conditions and the geometry of the discharge chamber and, consequently, the detonated conductor permitted incompletely expanded supersonic plasma jets to be obtained at atmospheric pressure with an escape velocity of v = 25 km/sec for a contributed energy of 1.3 kilojoules (mode I). The presence of intense continuous and linear spectra is a characteristic feature of the emission of the erosion plasma (V = 5 kilovolts, C = 1,950 microfarads (mode II) without electric detonation of the conductors) formed inside the discharge chamber. Spectroscopic measurement of be plasma temperature and concentration (T = 6,000° K, $n_e = 5 \cdot 10^{10}$ cm⁻³)

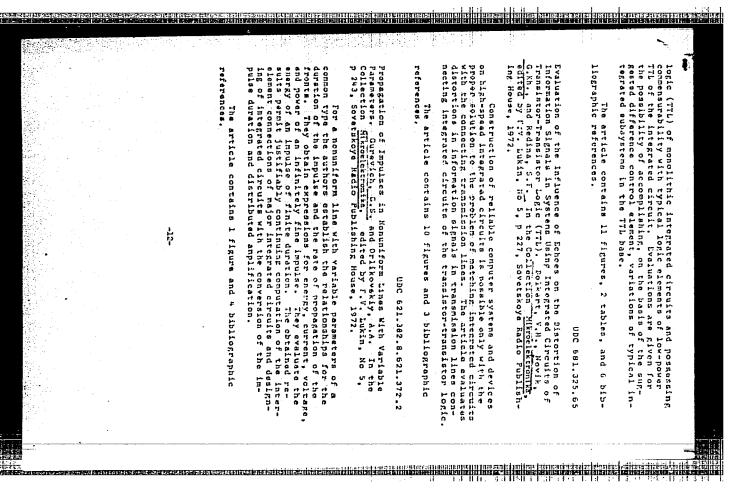
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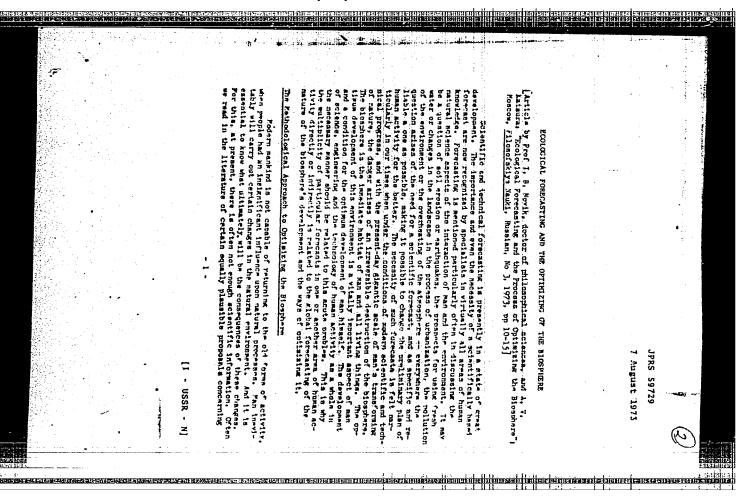
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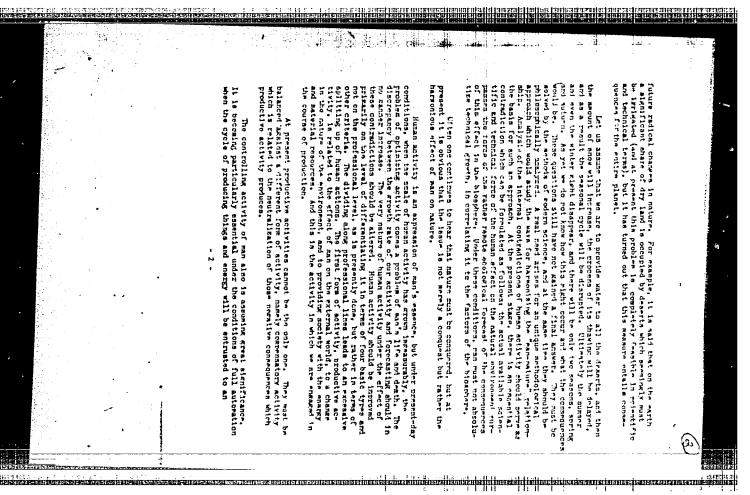


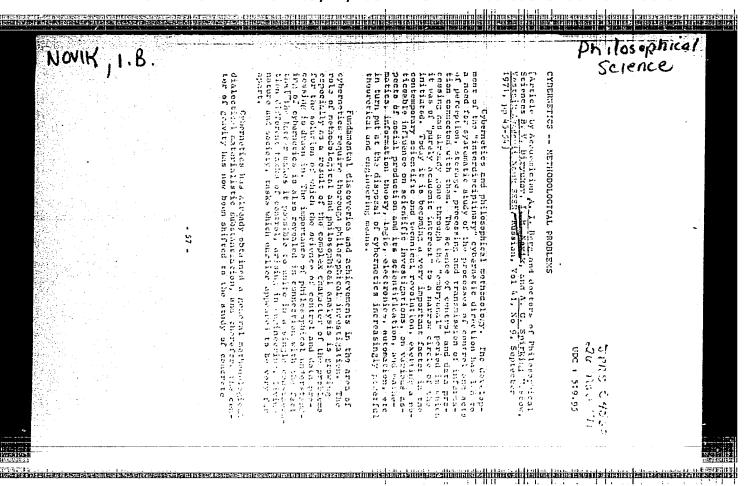


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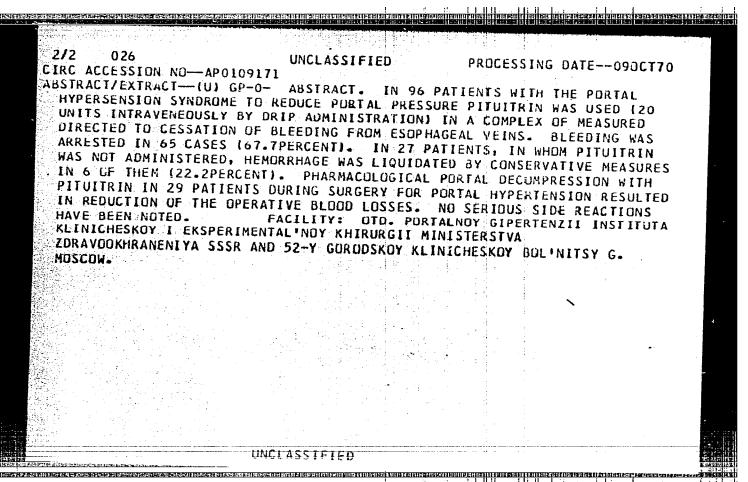
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SUURCE—VESTNIK KHIRURGII IME	ENI I. I.	GREKUVA,	1970, VOL	104, NR	5. PP
DATE PUBLISHED70					
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Ref. Code: 11R0122

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UDC 621.787.4: __669.14:621.785.532

TUROVSKIY, M. L., Candidate of Technical Sciences, NOVIK, R. A.

"Strengthening Rolling of Nitriding Steel Parts"

Moscow, Vestnik Mashinostroyeniya, No 1, 1970, pp 39-42

Abstract: This article deals with the strengthening of nitriding steel parts, by surface rolling. It describes a series of investigations of the effect of rolling pressure, of the number of rolling passes, and of the length travel, on surface layer properties. Investigations were conducted on standard samples for fatigue bending tests, made of 18 x 2H4VA steel, with nitriding layer of 0.35-0.40 mm thickness, and of HV700-750 and HRC32-pressures, calculateed by the Hertz formulas were considered, as a basic parameter defining the rolling strain. Samples strengthened with rolling pressures (k = 355 to 710 kg/mm², rotating

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at 98 rpm were tested. Distribution of axial residual stresses across the sample thickness, and of hardness in the cross section of nitriding sample, with respect to maximum rolling pressure are presented in graphs. The variation of the residual stresses during rolling can be explained by the elastic-plastic deformation of the nitriding layer. This is substantiated by the results of hardness measurements on the oblique cuts on samples. crease in nitriding layer hardness begins at 560 kg/mm² and continues up to 710 kg/mm² pressure, at which cracks appear on the surface. The mechanism of surface strengthening of nitriding steels is tentatively explained. The strengthening of nitriding layer, which occurs at quite narrow pressure range (from 560 to 700 kg/mm2) is a characteristic feature of this treatment. The lesser pressures, practically, do not affect the layer properties, while the greater pressures lead to its destruction. The dependence of the magnitude of residual stresses across the depth of a sample on the number of rolling passes (1 to 10) at different pressures and on the length travel (0.02 to 0.5 mm/ tour) is presented in graphs and analyzed. The optimal length travel is determined through axial residual stress on amples strengthened at 640 kg/mm2 pressure.

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The effect of heating on fatigue strength of nitriding steels was investigated. The results show, that heating leads to a substantial reduction of residual stresses in the layer. Including nitriding with consecutive rolling is established, the residual stresses and fatigue strength of nitrid steel is revealed. Original article has 6 figures.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"

USSR

UDC: 632.95

NOVIK, R. M., KOZLOVA, I. V.

"Polarographic Study of the Insecticide Nemagon (1,2-Dibromo-3-cholorpopane)

Probl. analit. khimii [Problems of Analytic Chemistry -- Collection of Works], Vol 2, Moscow, Nauka Press, 1972, pp 90-95 (Translated from Referativnyy Zhurnal Khimiya, No 24(II), 1972, Abstract No 24N577, by T. A. Belyayeva)

Translation: Alternating current polarography was performed on the KAP-225u polarograph to study the polarographic behavior of BrCH2BrCHCH2C1 (I) and

determine the possibility of application of polarographic methods to the analysis of pesticidal preparatious based on 1. In order to determine nemagon in tap water, ten ml of the water to be analyzed is added to 1.3 g Na_2SO_3 , mixed, transferred to an electrolyzer (polarographic cell with mercury bottom); a

polarogram is measured in the potential interval from 0.0 to 1.0 v.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"

USSR

UDC 632.95

NOUTH R. H., PLYNGYU, N. I.

"Analysis of DNOK Against a Mixed Aqueous-Organic Background by the AC Polarographic Method"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov i profilakt. zagryazneniya imi produktov pitaniya, kormov i vnesh. sredy (Norks of the Second AllUnion Conference on the Investigation of Pesticide Residues and Preventive
Contamination of Food Products, Feeds and Environment), Tallin, 1971, pp
245-248 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12N507)

Translation: In analyzing residues of DNOK in apple tree branches, the ground sample is mixed with a solution of borate buffer in a 40% aqueous solution of DMFA for 15-30 minutes, it is agitated for 45 minutes and the polarographic analysis is run on an AC polarograph with a mercury drop cathode and Hg-anode. The sensitivity of the method is 1 γ of DMOK in a milliliter of solution. The accuracy of analyzing the DNCK within the limits of $\pm 10\%$ coincides with the data from other methods.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"

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USSR

UDC [537.226+537.311.33]:[537+535]

GAVRILOVA, N. D., MELESHINA, V. A., NOVIK, V. K., KOPTSIK, V. A.

"Peculiarities in the Behavior of Pyroelectric Coefficients of Triglycine Sulfate (TGS) Crystals With Varying Domain Structure in the Region of the Phase Transition Point"

Elektron. tekhnika. Nauch.-tekhn. sb. Materialy (Electronic Engineering: Collection of Scientific and Technical Works on Materials), 1970, vyp. 8, pp 15-18 (from RZh-Fizika, No 10, Oct 71, Abstract No 10YE613 from summary)

Translation: The article presents results of experimental research on the pyroelectric coefficients of TGS crystals for naturally unipolar specimens with varying domain structure and bias fields.

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- 69 -

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"

USSR

UDC [537.226+537.311.33]:[537+535]

GAVRILOVA, N. D., NOVIK, V. K., KOPTSIK, V. A., and IVANOVA, S. V.

"Pyroelectric Study of the Behavior of Domain Structure in Triglycine Sulfate (TGS) and Rochelle Salt Crystals"

Elektron. tekhnika. Nauch.-tekhn. sb. Materialy (Electronic Engineering: Collection of Scientific and Technical Works on Materials), 1970, vyp 8, pp 19-21 (from RZh-Fizika, No 10, Oct 71, Abstract No 10YE612 from summary)

Translation: The authors investigated the formation of domain structure in TGS and BaTiO₃ crystals during phase transition under various electrical boundary conditions at the moment of crossing through the Curie point. The difference in the behavior of closed and open specimens is discussed from the viewpoint of domain topography and the presence of charged domain boundaries.

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USSR

VDC: 536.532

NOVIK V. K., SAMBURSKIY, A. I., MAGIDIN, S. F., Special Design Office of Biophysical Equipment

"A Method of Determining the Temperature of Rotating Objects Without Making Electrical Contact"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329414, Division G, filed 23 Jun 70, published 9 Feb 72, p 162

Translation: This Author's Certificate introduces a method of determining the temperature of rotating objects without making electrical contact by modulating the parameters of the oscillatory process of a self-synchro oscillator with two heat-sensing elements, transmitting the information through an optical communications channel, and registering the signal by means of a stationary photoreceiver. As a distinguishing feature of the patent, precision is improved by simultaneously determining the period of the oscillator signals modulated by one heat-sensing element, e.g. by a capacitor, and the off-duty factor of the oscillations modulated by the other heat-sensing element, e.g. by a thermocouple, and determining the temperature at two points of the object from the resultant data.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"

USSR E

UDC 621.382

NOVIK. V. K., GAVRILOVA, N. D.

"Pyroelectricity and the Prospects for its Practical Use"

Elektron. tekhnika. Nauch.-tekhn. sb. Materialy (Electronics Technology. Scientific-Technical Collection. Materials), 1970, Issue 8, pp 22-32 (from RZh-Elektronika i yeye primeneniye, No 9. September 1971, Abstract No 9B7)

Translation: This paper is a summary of works devoted to problems of the search for new pyroelectric materials, the study of the causes influencing the magnitude of the macroscopic polarization of ferroelectrics, and problems of the use of pyroelectricity together with the ferroelectric effect. A table is presented of the values of the pyroelectric coefficient and the dielectric constant for 15 substances with monocrystalline structure. An electrical equivalent circuit is described which reflects all the extrinsic properties of a pyroelectric as a temperature-electrical voltage converter. Achassification system is given for the principal course for study of pyroelectric crystals, taking into account all the complex of electrical properties. In systems of thermal vision [teplovideniye], transmission of antimage at a wavelength of 7-8 micrometer makes it possible to attain a

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USSR

NOVIK, V. K., GAVRILOVA, N. D., Elektron. tekhnika. Nauch.-tekhn. sb. Materialy (Electronics Technology. Scientific-Technical Collection. Materials), 1970, Issue 8, pp 22-32 (from RZh-Elektronika i yeye primeneniye, No 9, September 1971, Abstract No 9B7)

sensitivity threshold of 10^{-5} watt/cm with a resolution of 5 lines/mm and a modulation frequency of 10 frames/sec. By means of pyroelectric sensing units, their response to a $2 \cdot 10^{-5}$ degree temperature change is experimentally established. The prospects for a constructive conference on film pyroelectric data units with film semiconductor amplifiers are indicated. 24 ref. K.S.

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1/3 029
TITLE--ON THE PERFORMANCE OF A PYROELECTRIC WITH A FIELD EFFECT TRANSISTER
AUTHOR- (AET NOV.)

AUTHOR-(05)-NOVIK, V.K., NIKONOV, A.S., SOPOV, D.V., LEVINA, I.A., COUNTRY OF INFO--USSR

SOURCE--MOSCOW, RADIOTEKHNIKA I ELEKTRONIKA, NO 3, MAR 70, PP 642-644

SUBJECT AREAS--PHYSICS, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--PYRUELECTRIC DETECTOR, FIELD EFFECT TRANSISTOR, ELECTRONIC AMPLIFIER, ELECTROMAGNETIC NOISE, VOLT AMPERE CHARACTERISTIC, SILICON, SILICON,

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--1987/1465

STEP NO--UR/0109/70/000/003/0642/0644

CIRC ACCESSION NO--APO104759

UNCLASSIFIED

2/3 029 CIRC ACCESSION NO--APO104759 UNCLASSIFIED PROCESSING DATE--230CT70 ABSTRACT/EXTRACT--(U) GP-0-PERFORMANCE OF PYROELECTRIC ELEMENTS (INVRARED AND MILLIMETER WAVE ABSTRACT. THIS PAPER IS CONCERNED WITH THE DETECTORS, THERMOMETERS, ETC.) WITH A FIELD EFFECT TRANSISTOR. OF DEVICES COMBINING RECEIVING AND AMPLIFYING ELEMENTS IN DNE DEVICE WAS THE DEVICES WERE BASED ON SILICON METAL OXIDE SEMICONDUCTOR (MOS) TRANSISTORS WITH P AND N TYPE CHANNELS. GOAL OF THE INVESTIGATION WAS THE DETERMINATION OF THE MAXIMUM VALUE OF THE THERMAL NOISE R WHICH ASSURES ABSENCE FROM BREAKDOWN OF THE GATE IN THE PRESENCE OF VARIOUS THERMAL EFFECTS LOVER ALL SLOW CHANGE OF TEMPERATURE, POWER PULSE EXPOSURE, ETC.). THE CASINGS OF TYPE GT-313 TRANSISTORS. THE SENSING ELEMENTS WERE THE DEVICES WERE ASSEMBLED IN PREPARED FROM CRYSTALS OF TRIGLYCINESULFATE AND MEASURED SIMILAR TO 3 BY 3 BY 0.5 MM. MOUNTING OF THE ELEMENTS AND THE ELECTRODES TO THEM WAS DONE WITH SILVER PASTE. THE INVESTIGATIONS SHOWED THAT THE STABILITY OF DEVICES WITH A P TYPE CHANNEL WAS DEFINITELY HIGHER. IT WAS DETERMINED THAT THE OPTIMUM VALUE OF R IS 1 G OHM. WITH SUCH A LOAD, THE THRESHOLD SENSITIVITY IN THE 20 HZ, 20 KHZ RANGE AMOUNTS TO SIMILAR TO 3 TIMES 10 PRIME NEGATIVET WATT. IT WAS FOUND THAT TRANSISTORS WITH A VOLTAGE CUT OFF OF 5 V ARE MOST SUITABLE FOR OPERATION WITH PYROELECTRIC ELEMENTS. IN THAT CASE, THE BIAS VOLTAGE WHICH IS FED TO THE GATE FROM THE DRAIN SOURCE ASSISTS LONG TERM MAINTENANCE OF THE MACROSCOPIC POLARIZATION OF THE CRYSTAL. THE WRITERS CONCLUDE THAT FIELD EFFECT TRANSISTORS ARE PROMISING AMPLIFYING ELEMENTS FOR OPERATION WITH PYROELECTRIC ELEMENTS.

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USSR



UDG: 621.382.323

HOWEN, V. K., NIKONOV, A. S., SOPOV, O. V., LEVINA, I. A., GAVRILOVA, H. D., and YEGINA, Ye. N.

"Pyroelectric Operation with Field Effect Transistor"

Moscow, Radiotekhnika i Elektronika, Vol. 15, No. 3, 1970, pp 642-

Abstract: The authors list four advantages of pyroelectric elements which have made them objects of engineering interest: high input impedance; lower noise level; possibility of combining sensor and amplifying elements in a single device; possibility of designing planar and epitaxial integral sensor and amplifier systems. The pyroelectric detector has a low noise level, and its sensitivity depends on the condition that the product of the frequency, the load resistance, and the crystal capacitance exceed unity, a condition not easily realized in various types of transistor. Other characteristics of pyroelectric transistors are briefly listed. The authors of this brief communication

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"

USSR

NOVIK, V. K., et al, Radiotekhnika i Elektronika, Vol 15, No 3, 1970, pp 642-644

Abstract:

tested combined sensor-amplifier pyroelectric units with silicon junctions; the purpose of these tests was to establish the maximum value of load resistor required to evade gating breakdown for various thermal reactions such as slow temperature changes, power flare spots, etc. Photographs and a schematic sketch of these devices are shown, and some details of their fabrication are given. The tests showed that the optimal value of the load resistor was I gigohm; at this value, the threshold sensitivity in the 20 Hz to 20 kHz was about 3·10-7 watts. Conclusions arrived at by the authors are: field effect transistors are promising amplifier elements for working with pyroelectric detectors; it is better to combine sensing and amplifying elements in a single package than to mount the pyroelectric directly on the transistor p-n structure.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"

USSR

WDC 621.375.82

KOSTIN, V. V., NOVIK, V. K.

"Pyroelectric Device for Measuring the Energy Characteristics of Laser Radiation"

V sb. Impul's. fotometriya (Pulse Photometry -- Collection of Works), No. 2, Leningrad, "Mashinostroyeniye", 1972, pp 115-119 (from RZh-Fizika, No. 10, Oct 72, Abstract No 10D1027)

Translation: A pyroelectric receiver for measuring the parameters of laser radiation pulses makes possible its application in the energy range from millipules to tens of joules for pulse lengths from microseconds to tens of milliseconds. The energy discharge of a capacitor is used to calibrate the pyroreceiver. 7 ill., Authors abstract.

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USSR

UDC 621.373.029.7.004.14:681.3

BOGDANKEVICH, O. V., NASIBOV, A. S., NOVIKOV, A. A., PECHENOV, A. N., FEDOROV, V. B., TSVETKOV, V. V.

"Some Possibilities of Applying a Semiconductor Laser with Electron Excitation in Computers"

Moscow, Radiotekhnika i Elektronika, Vol XVI, No 5, May 1971, pp 824-828

Abstract: A study is made of the requirements on a cathode ray tube based on a semiconductor laser with electron excitation beginning with the problems of creating prospective optoelectronic memories. Experimental and theoretical results confirming the possibility of satisfying these requirements are presented.

The threshold current density is plotted as a function of the electron energy for various sizes of the excited domain d and reflection coefficients of the mirrors. With a beam energy of 100 kiloelectron volts and a current density of 10 amps/cm² from a cell 210 microns in diameter, the output power was 5 watts, and the conversion efficiency was 1.5 percent. Since the pulse length of the electrons in the beam was 10^{-7} seconds, the radiation energy was 1.0^{-7} joules. Consequently, in order to obtain the radiation energy of

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BOGDANKEVICH, O. V., et al., Radiotekhnika i Elektronika, Vol XVI, No 5, May

 10^{-7} joules required to insure a read rate of B = 10^{8} bits/second, under all other equal conditions, the size of the spot on the laser screen of the cathode ray tube has to be about 100 microns. The pulse power of the radiation will be about 40 × 40 mm. A screen spot size up to 300 microns is required to insure a read rate of 10^{9} bits/second.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"

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USSR

UDC 548.4

MIL'VIDSKII, M. G., OSVENSKII, V. B., NOVIKOV, A. G., FOMIN, V. G., GRISHINA, S. P., Government Scientific-Research and Planning Institute for the Rare Metals Industry

"Effect of Thermal Processing on the Ideal Structure of Monocrystals of Gallium Arsenide Alloyed with Tellurium

Moscow, Kristallografiya, vol 18, No 4, July-August 1973, pp 826-829

The effect of thermal processing (1100°C, 700°C, up to 50 hr) on the physical properties of gallium arsenide containing 10¹⁹ tellurium atoms per cubic centimeter was studied by selective chemical etching, measurement of the Hall effect, two-crystal spectrometry, diffraction topography, and precision measurements of the lattice. The electrical properties and monocrystal structural data indicate a destruction of the supersaturated solid solutions with formation of a second phase.

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- 18 -

USSR

UDC: 621.375.4.089.52-503.22:517.27

BESKROVNYY, I. M., ZABASHTA, P. T., NOVIKOV, A. F.

"Sensitivity Optimization of a Transistorized Amplifier with Negative Feedback"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi (Semiconductor Devices in Electrical Communications Technology-collection of works), Vyp. 5, Moscow, "Svyaz'", 1970, pp 159-165 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7D102)

Translation: Relationships are given which are used to optimize transistorized amplifiers with respect to minimum sensitivity of the transfer coefficient to a change in transistor gain h_{21e} in a common-emitter circuit. Resume.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"

1/2 037 UNCLASSIFIED TITLE--APPARATUS FOR STUDYING THE RELAXATION PROPERTIES OF POLYMERS -U-

PROCESSING DATE--230CT70

AUTHOR-1021-ZELENEV, YU.V., NOVIKOV. A.G.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(2), 235-7

DATE PUBLISHED ---- 70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--COMPRESSIVE STRESS, PLASTIC DEFORMATION, POLYMER, SHEAR MODULUS, POISSON COEFFICIENT, MATERIAL TESTING EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--1995/1471

STEP NO--UR/0032/70/036/002/0235/0237

CIRC ACCESSION NU--APOLL6908

UNCLASSIFIED

2/2 037 UNCLASSIFIED CIRC ACCESSION NO--APO116908 PROCESSING DATE--230CT70 ABSTRACT/EXTRACT-- (U) GP-O- ABSTRACT. THE APP. CONSISTS OF AN ELECTROMAGNETIC SYSTEM FOR THE APPLICATION OF CONST. OR VARIABLE COMPRESSION STRESS TO POLYMER SAMPLES, A SYSTEM OF TENSODYNAMOMETERS FOR DETG. THE LONGITUDINAL AND TRANSVERSE DEFORMATIONS OR STRESSES, AND A THERMOSTAT. THE APP. IS USED FOR STUDYING THE RELAXATION PROPERTIES OF POLYMERS IN THE GLASSY OR VISCOELASTIC STATE. THE COMPRESSION AND SHEAR MODULI. POISSON'S COEFFS., AND THE MECH. LOSS ANGLE MAY ALSO BE DETD. A COMPLEX ELECTRONIC PHASOMETER, COUPLED TO AN OSCILLOGRAPH, WAS USED FOR DETG. THE PHASE LAG BETWEEN THE APPLIED (SINUSDIDAL) STRESS AND THE MATERIAL RESPONSE. FACILITY: MOSK. GOS. PEDAGOG. INST. IM. LENINA, MOSCOW, USSR. UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"

USSR

VDC 681.332.05

VOSTOKIN, Ye. A., YERSHOV, L. 1., ZHURAVLEV, P. A., LEBEDEV, M. P., NOVIKOV,

"Device for Linking a Computer With a Communication Channel"

USSR Authors' Certificate No 341054, Cl. G 06j 3/00, filed 4 May 70, published 5 Jun 72 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 18, 5 Jun 72, p 186)

Abstract: The device contains an electronic telegraph receiver and transmitter, a block of keys, and delay circuit flip-flops. For simplification the outputs of the computer are connected to the inputs of the block of keys, whose outputs are connected to the inputs of the electronic transmitter; and the inputs of the control circuits of the block of keys are connected to the outputs of a flip-flop, one input of which is connected to the "trigger" output of the computer; the other, to the transmitter output; the outputs of the electronic receiver are connected to the inputs of the flip-flops, whose outputs are connected to the inputs of the computer, and the "trigger" output of the electronic receiver is connected through the delay circuit to the "clear" 1/1

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wc 542.65(546.791.6+546.723+546.831+546.714+546.46)

HOVIKOV. A. I., and GORDEYEV. L. N.

"Co-Precipitation of Uranium (VI) With the Hydrated Oxides of Iron (III), Zirconium, Manganese (IV) and Magnesium"

Leningrad, Radiokhimiya, Vol 14, No 1, 1972, pp 14-20

Abstract: A significant influence is exerted by pH and the valence state of uranium during its coprocipitation with the title exides. During the reaction of uranyl nitrate with alkali hydroxide solutions the precipitates contained the following compounds: UO₂(OH)NO₃ (pH=2.5-3.0): UO₂(NO₃)₂·3UO₂(OH)₂(pH=3.5-4), UO₂(OH)₂ (pH=4-5), Ne₂U₇O₂₂ (pH=6-6.5), Ne₂U₄O₁₃ (pH=7-9), Ne₂U₂O₇ (pH=9-i1), Ne₂UO₄ (pH=12), where Me is an alkali metal. The uranyl ion forms many complexes whose stabilities are generally in the following order: CO₃ 00²⁻⁷ OH 7 F CH₃COO 7 C₂O₄ 7 SO₄ 7 Cl⁻⁷ NO₃, and so on. The general experimental conditions were 0.05 to i mg U (VI) in solutions containing hydrogen peroxide and/or one or more of the following compounds-ammonium nitrate, sulfate, and bicarbonate; sodium perchlorate, at pH values of 1 to 12. The blank for the partition of U between the solution and the procipitate was

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NOVIKOV, A. I., and GORDEYEV, L. N., Radiokhimiya, Vol 14, No 1, 1972, pp 14-20

run photometrically with the reagent arsenazo III /a complexing agent/. The mother liquor from cantrifuging was adjusted to pH 2.9 before analysis and special procedures were used for pH > 10. A glass electrode pH meter was used. Solution and precipitate remained in contact about 30 minutes. The ratio of coprecipitation as a function of ph is plotted for a variety of solutions. Three results were observed: (1) The coprecipitation and sorption were initiated in the range of hydrolysis of the uranyl ions, increased in proportion to their polymerization, and decreased during the formation of the coordination-saturated ions $UO_2(CO_3)_3^{-1}$ and the anion UO_4^{2-1} . (2) The concentration of U(VI)by the precipitate with hydrated oxides (H. O.) in all solution of NH, NO takes place in the H. O. of Fe at pH 6-8.5; in Zr at pH 5.5-7.0; and in Im (TV) at pH 3-8. The U was concentrated in the coprecipitate containing the H.O. when sulfate and carbonate ions were present; and in the solutions when the aqueous phase contained hydrogen peroxide. (3) The separation of U from its carriers in the presence of carbonates occurred at pH > 7.5 for the H.O. of Fe and pH > 9 for H. O. of Mn(IV); for solutions containing hydrogen percende a pH > 13.5 was required for its separation from the H. O. of Fe and Mg. 2/2

USSR

UDC 542.65 (546.791.6 + 546.723 + 546.831 + 546.714 + 546.46)

NOVIKOV, A. I., and GORDEYEV, L. N.

"Co-Precipitation of Uranium (VI) With the Hydrated Oxides of Iron (III), Zirconium, Manganese (IV) and Magnesium"

Leningrad, Radiokhimiya, Vol 14, No 1, 1972, pp 14-20

Abstract: A significant influence is exerted by pH and the valence state of uranium during its coprecipitation with the title oxides. During the reaction of uranyl nitrate with alkali hydroxide solutions the precipitates contained the following compounds: UO2(OH)NO3 (pH=2.5-3.0), UO2(NO3)2·3UO2(OH)2(pH-3.5-4), UO2(OH)2 (pH=4-5), Me2U7022 (pH=6-6.5), Me2U4C13 (pH=7-9), Me2U207 (pH=9-11), Me2U04 (pH=12), where Me is an alkali metal. The uranyl ion forms many complexes whose stabilities are generally in the following order: $CO^2 > 0O^2 > OH > F > CH_3COO > C_2O_4^2 > SO_4^2 > C1 > NO_3, \text{ and so on.}$ The general experimental conditions were 0.05 to 1 mg U (VI) in solutions containing hydrogen peroxide and/or one or more of the following compounds - ammonium nitrate, sulfate, and bicarbonate; sodium perchlorate, at pH values of 1 to 12. The blank for the partition of U between the solution and the precipitate was run photometrically with the reagent arsenazo III [a complexing agent]. The mother liquor from centrifuging was adjusted to 1/2

USSR

NOVIKOV, A. I., and GORDEYEV, L. N., Radiokhimiya, Vol 14, No 1, 1972, pp 14-20

pH 2.9 before analysis and special procedures were used for pH > 10. A glass electrode pH meter was used. Solution and precipitate remained in contact about 30 minutes. The ratio of coprecipitation as a function of pH is plotted for a variety of solutions. Three results were observed: (1) The coprecipitation and sorption were initiated in the range of hydrolysis of the uranylions, increased in proportion to their polymerization, and decreased during the formation of the coordination-saturated ions $U0_2(C0_3)_3^{4-}$, $U0_2(0_2)_3^{4-}$ and the anion $U0_2^{2-}$. (2) The concentration of U(VI) by the precipitate with hydrated oxides (H. 0.) in alm solution of NH_4NO_3 takes place in the H. 0. of Fe at pH 6-8.5; in Zr at pH 5.5-7.0; and in Mn(IV) at pH 3-8. The U was concentrated in the coprecipitate containing the H.O. when sulfate and carbonate ions were present; and in the solutions when the aqueous phase contained hydrogen peroxide. (3) The separation of U from its carriers in the presence of carbonates occurred at pH > 9 for H. O. of Mn(IV); for solutions containing hydrogen perioxide a pH > 13.5 was required for its separation from the H. O. of Fe and Mg.

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UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--OBSERVATION OF THE SUPPRESSION OF THE INEALASTIC CHANNEL OF A

NUCLEAR REACTION IN RESONANT NUCLEAR SCATTERING OF GAMMA RAYS IN A

AUTHOR-(04)-VOITOVETSKIY, V.K., KORSUNSKIY, I.L., NOVIKOV, A.I., PAZHIN,

YU.F.

COUNTRY OF INFO--USSR

SOURCE--JETP LETTERS (USA), VOL. 11, NO. 3, P. 149-53 (FEB. 1970)

DATE PUBLISHED --- FEB 70

SUBJECT AREAS -- NUCLEAR SCIENCE AND TECHNOLOGY, PHYSICS

TOPIC TAGS--NUCLEAR RESONANCE, NUCLEAR REACTION, NUCLEAR SCATTERING, GAMMA RAY, SINGLE CRYSTAL, TIN ISOTOPE

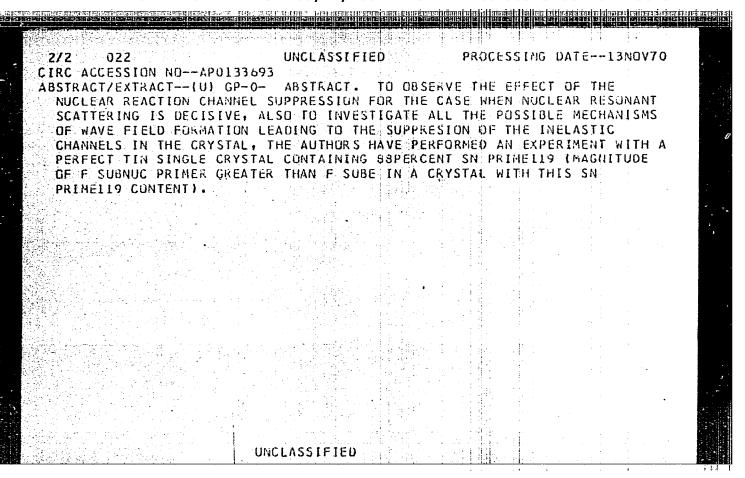
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PROXY REEL/FRAME--3005/1788

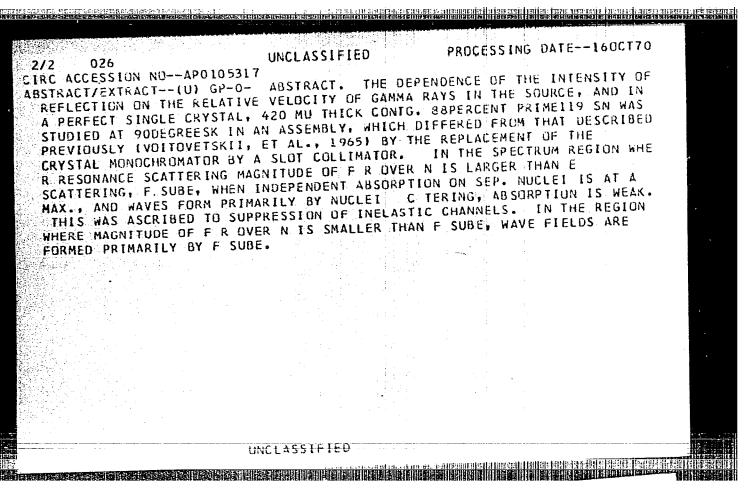
STEP NU--US/0000/70/011/003/0149/0153

CIRC ACCESSION NO--APO133693

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PROCESSING DATE--160CT70 TITLE-OBSERVATION OF THE SUPPRESSION OF THE INELASTIC CHANNEL OF A NUCLEAR REACTION DURING RESONANCE NUCLEAR SCATTERING OF GAMMA RAYS IN A AUTHOR-(04)-VOYTOVETSKIY, V.K., KORSUNSKIY, I.L., MOVIKOV, A.I., PAZHIN, COUNTRY OF INFO--USSR SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 970, 11(3), 149-53 YU.F. DATE PUBLISHED----70 TOPIC TAGS--SINGLE CRYSTAL PROPERTY, GAMMA IRRADIATION, GAMMA SCATTERING, SUBJECT AREAS--PHYSICS TIN ISOTOPE, RESONANCE SCATTERING, PARTICLE ABSORPTION, INELASTIC SCATTERING, RADIATION DETECTOR, COLLIMATOR CONTROL MARKING--NO RESTRICTIONS STEP NO--UR/0386/70/011/003/0149/0153 DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--1988/0241 MO-APO105317



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UDC: 51.801

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NOVIKOV A I YAKUSHIN, B. V.

"Algorithm for Indexing Texts with Weighted Key Words Using Method of Semantic Filtration"

Nauch.-tekhn. Inform. Sb. Vses. In-t Nauch. i Tekhn. Inform. [Scientific and Technical Information, Collection of All-union Institute of Scientific and Technical Information], 1972, Ser 2, No 6, pp 15-20 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V623, by the authors)

Translation: The methods authors use to separate the main aspects of the content of a text are analyzed. Three stages of semantic filtration are described, plus the procedure for formation of fragments and construction of terminological chains within fragments. Quantitative characteristics of centers of terminological chains are developed; the sense weights of centers are calculated. An experiment is described, performed to check the algorithm. It is concluded that the operation of the algorithm can be considered effective.

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1/2 029 UNCLASSIFIED PROCESSING DATE--13NOV70 TITLE--INCREASING THE WEAR RESISTANCE OF VULCANIZED RUBBER -U-

AUTHOR-(04)-NOVIKOV, A.S., NUDELMAN, Z.N., SHALYGIN, G.F., PROKUDIN, I.P.

COUNTRY OF INFO--USSR

SOURCE--GER. 1,694,680

DATE PUBLISHED--21MAY 70

SUBJECT AREAS -- MATERIALS

TOPIC TAGS--WEAR RESISTANCE, CHLOROPRENE, ACRYLONITRILE, BUTADIENE, COPOLYMER, SYNTHETIC RUBBER, ANTIMONY FLUORIDE, FLUORINATION, CHEMICAL PATENT

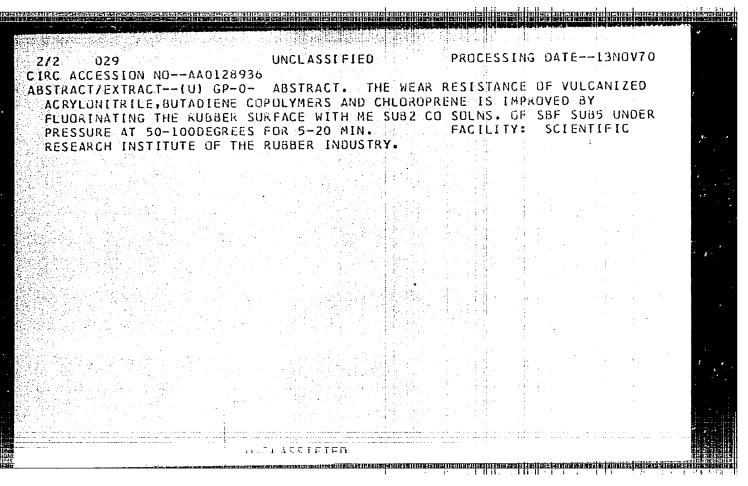
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DCCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--3002/1541

STEP NO--GY/0000/70/000/000/0000/0000

CIRC ACCESSION NG--AA0128936

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LAYNER, D. I., TSYPIN, M. I., NOVIKOV, A. V., SHEVAKIN, Yu. F., SOLLERTINSKAYA, Ye. S., AFONIN, M. P.

"Ductility, Brittleness and Superplasticity of Copper"

Doklady Akademii Nauk SSSR, Vol 209, No 1, 1973, pp 80-82.

Abstract: This work studies the peculiarities of the behavior of specimens (gage section 6 x 30 mm) cut from copper ingots and deformed by extension over a broad range of temperatures (from -196 to +1000°C, tests at 100°C and over conducted in a vacuum) and deformation rate $(10^{-5}-10^{-2}\ sec^{-1})$. Deformation curves were processes on a Minsk-32 computer. Three types of copper were tested: M1, containing 99.95% Cu, 0.02% 0_2 ; MOB, containing 99.99% Cu and $(5-10)\cdot10^{-4}$ % 0_2 ; and MVCh, containing 99.994% Cu and $(5-10)\cdot10^{-4}$ % 0_2 . The work establishes the existence of two mechanisms for plastic deformation of copper at high temperatures. One exhibits superplasticity by periodic recrystalization of the metal in the deformation center. The existence of this superplasticity mechanism can be considered experimentally proven at least for pure metals.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"

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UDC 669.3:539.214:539.377

LAYNER, D. I., TSYPIN, M. I., NOVIKOV, A. V., SHEVAKIN, Yu. F., SOLLER-TINSKAYA, Ye. S., AFONIN, M. P., State Scientific Research and Design Institute of Alloys and Nonferrous Metalworking, Moscow

"Ductility, Brittleness and Superplasticity of Copper"

Moscow, Doklady Akademii Nauk SSSR, Vol 209, No 1, Mar/Apr 73, pp 80-82

Abstract: The authors investigate the particulars of behavior of specimens cut from copper ingots and deformed by tension over a broad temperature range (from -196 to 1000° C, tests at 100° C and higher being done in vacuum) at strain rates from 10^{-5} to 10^{-2} s⁻¹. The deformation curves were processed on the "Minsk-32" digital computer. The results show the existence of two fundamentally different mechanisms of high-temperature plastic deformation of copper, in one of which superplasticity is observed due to periodic recrystallization of the metal at the focus of deformations. The existence of such a mechanism of superplasticity may be considered proved, at least for pure metals.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"

USSR

UDC 621.78:539.219.3

NOVIKOV. B. A., KONNOVA, I. Yu., SHCHERBEDINSKIY, G. V., COLOVANENKO, S. A., and MASLENKOV, S. B., Moscow

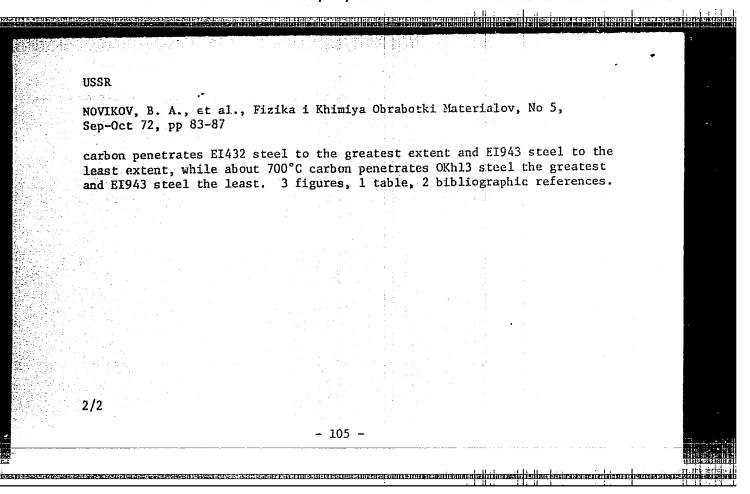
"Carbon Redistribution and Diffusion in Bimetals"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 72, pp 83-87

Abstract: Using C14 and methods of autoradiography and radiometric layer analysis the redistribution of carbon in St. 3+0Kh13 bimetal was studied for two variants: without an intermediate layer and with an intermediate nickel layer. It was shown that carbon passes from the carbon steel into the stainless steel both in the process of manufacture and during all subsequent annealings. The presence of a nickel intermediate layer inhibits the passage of carbon from steel St. 3 to 0Kh13 and strongly varies the nature of carbon redistribution in the contact zone.

For the purpose of selecting the best bimetal cladding layers for long-time service at elevated temperatures the temperature relationships of diffusion coefficients were determined for carbon in OKh13 ferrite steel and EI943 (OKh23N28M3D3T), EI628(OKh23N28M2T), and EI432 (OKh17N13M3T) austenitic steels. Comparison of the data on these steels showed that up to 700°C 1/2

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UDC 661.183.123

NOVIKOV, B. G., BELINSKAYA, F. A., and MATEROVA, YE. A.

Exchange of Bivalent Cations on Crystalline Antimomate Cation Exchanger

Leningrad, Vestnik Leningradskogo Universiteta, Seriya Fizika i Khimiya, No 1, Feb 71, pp 35-42

Abstract: The article describes results of a study of the exchange of hydrogen ions for bivalent cations on the antimonate cation exchanger in the systems MgCl_2-HCl , CaCl_2-HCl , SrCl_2-HCl , BaCl_2-HCl , NiCl_2-HCl and CdCl_2-HCl . The ion exchange experiments were carried out under static conditions by the method of individual samples at 20 and 80° C. Selectivity coefficients were calculated on the basis of ion-exchange equilibrium data for the systems SrCl_2-HCl , CaCl_2-HCl , CdCl_2-HCl and BaCl_2-HCl . The dependence of the selectivity coefficients on the ion composition of the cation exchanger was found, making it possible to determine some thermodynamic functions of the $\text{H}^2+\rightarrow\text{H}^+$ exchange. It was found that the ions rank as follows in their

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NOVIKOV, B. G., et al., Vestnik Leningradskogo Universiteta, Seriya Fizika i Khimiya, No 1, Feb 71, pp 35-42

affinity for the cation exchanger: $Cd^{2+} > Sr^{2+} > Ba^{2+} > Ca^{2+} > Mg^{2+}$, M_1^{2+} . It is suggested that there are at least two factors determining ion exchange selectivity: the energy of hydration of the counterions and their polarizing capacity. The preferential influence of these factors on the ion exchange process is due in turn to structural peculiarities of the antimonate cation exchanger and the chemical nature of ionogenic groups. On the basis of the sharply pronounced selectivity of exchange of bivalent ions the cation exchanger is recommended for the extraction of Cd^{2+} , Sr^{2+} and Ba^{2+} ions from acid solutions, as well as for separation of the ions Cd^{2+} (Sr^{2+} , Ba^{2+}) $-Ca^{2+}$ (Mg^{2+} , Ni^{2+}) and $Ca^{2+}-Mg^{2+}$ (Ni^{2+}).

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UDC 661.183.123

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HOVIKOV, B. G., BELINSKAYA, F. A., and MATEROVA, YE. A.

*Structure and Ion Exchange Properties of Crystalline Antimonate Cation Exchanger. Exchange of Monovalent Cations"

Leningrad, Vestnik Leningradskogo Universiteta, Seriya Fizika i Khimiya, No 1, Feb 71, pp 29-35

Abstract: The article describes results of a study of the exchange of hydrogen ions for some monovalent cations on the new crystalline antimonate cation exchanger, as well as considering the structure of the ion exchanger. A structural model of the cation exchanger is shown. The cation exchange was studied under static conditions. For the characteristic of the active groups potentiometric titration of the ion exchanger was carried out with 0.1 N solutions of NaOH, KOH, LiOH, CsOH and (CH3) NOH against a 1 N background of the corresponding chlorides. For a quantitative description of the exchange of monovalent cations on the cation exchanger a study was made of ion exchange equilibrium in the systems NaCl-HCl, KCl-HCl, LiCl-HCl and AgNO3-HNO3 at

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NOVIKOV, B. G., et al., Vestnik Leningradskogo Universiteta, Seriya Fizika i Khimiya, No 1, Feb 71, pp 29-35

20 and 80° C at constant 0.1 N ionic strength of solution. Selectivity coefficients were calculated on the basis of the resultant data. It was found that the relative affinity of the antimonic cation exchanger for cations decreases in the order Ag⁺ > Na⁺ > H⁺ > K⁺ > Li⁺. Further study of the antinomic cation exchanger is promising because of its unique ion exchange properties, viz. sharply pronounced exchange selectivity in conjunction with chemical stability. Possible practical applications of the cation exchanger include its use for the quantitative extraction of silver ions from mixed solutions, as well as for the separation of alkali metal ions. A subsequent article will consider the exchange of bivalent cations on the antimonate cation exchanger.

The authors thank V. N. MARKIN for useful consultation in the construction of the structural model of the cation exchanger.

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PROCESSING DATE--230CT70 UNCLASSIFIED TITLE--SENSITIVITY OF GONAD TISSUES TO IONIZING RADIATION AT VERY LOW TEMPERATURES -U-AUTHOR-(02)-NOVIKOV, B.G., STETSENKO, M.A. COUNTRY OF INFO--USSR SOURCE--RADIOBIOLOGIYA 1970, 10(1), 119-21 DATE PUBLISHED---- 70 SUBJECT AREAS-BIOLOGICAL AND MEDICAL SCIENCES TOPIC TAGS-BIRD, REPRODUCTIVE SYSTEM, SPERMATOGENESIS, RADIATION BIOLOGIC EFFECT, COBALT ISOTOPE, GAMMA IRRADIATION, X RAY RADIATION BIOLOGIC EFFECT CONTROL MARKING--NO RESTRICTIONS DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/0205/70/010/001/0119/0121 PROXY REEL/FRAME--3002/0327 CIRC ACCESSION NO--APO127908

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"

UNCLASSIFIED

PROCESSING DATE--230CT70 UNCLASSIFIED 2/2 031 CIRC ACCESSION NO--APO127908 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TESTICLES TAKEN FROM DOMESTIC SPARROWS IN THE AUTUMN WINTER TIME, CONTG. SPERMATOGENIC EPITHELIUM IN THE FORM OF SPERMATOGONIA, WERE SUSPENDED IN PHYSIOL. SOLN., AND (1) IRRADIATED WITH X RAYS OR PRIME60 CO GAMMA RAYS, 109 R PER SEC. TO TOTAL DOSES OF 20-80 KR, AFTER PRELIMINARY 15-20 MIN TREATMENT WITH 8MU ETHYLENE GLYCOL (I); (2) IRRADIATED WITH 80-284 KR; OR (3) AFTER THE TREATMENT WITH I AS ABOVE, WERE TRANSFERRED INTO LIQUID AIR (MINUS 180DEGREES) AND IRRADIATED WITH 80-569 KR. AFTER IRRADN., THE GONADS WERE TRANSPLANTED INTO THE BODIES OF THE CASTRATE MALE SPARROWS, AND THE BIRDS WERE ILLUMINATED 16 HRS A DAY FOR 60 DAYS, WHEN THEY WERE DECAPITATED, AND THE GONADS EXAMD. HISTOL. THE 80-KR IRRADN. OF GONADS IN PHYSIOL. SOLN. DESTROYED ALL CELL COMPONENTS OF THE TESTICLES AND INHIBITED SPERMATOGENES IS. PRELIMINARY TREATMENT WITH I CONSIDERABLY INCREASED RESISTANCE TO IRRADN., AND THEIR SPERMATOGENIC ABILITY WAS RETAINED. SIMULTANEOUS TREATMENT WITH I AND LOW TEMP. DECREASED THE SENSITIVITY OF GONADAL TISSUES TO IONIZING IRRADN. STILL MORE. FACILITY: NAUCH .- ISSLED. INST. FIZIOL . KIEV. GOS. UNIV. IM. SHEVCHENKO, KIEV, USSR. HOLASSIFIED

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GROSS, Ye. F., NOVIKOV, B. V., and SOKOLOV, N. S.

"Luminescence of Bonded Excitons in Germanium Crystals"

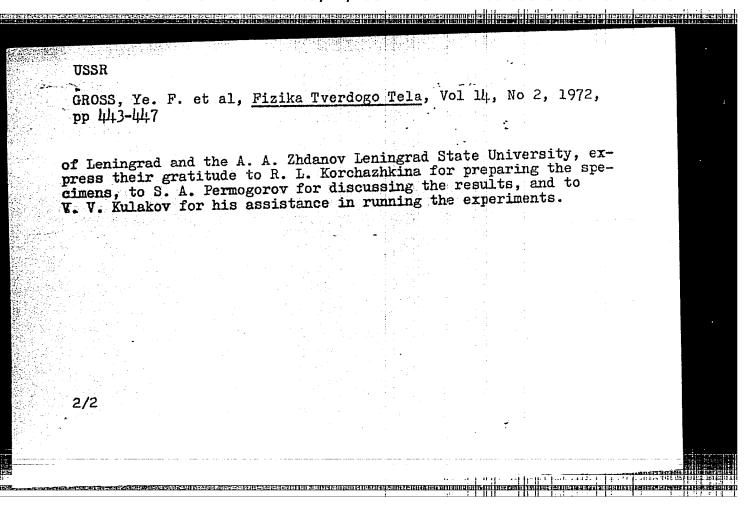
Leningrad, Fizika Tverdogo Tela, vol 14, No 2, 1972, pp 443-447

Abstract: Because little is known of the glow phenomena of germanium doped with elements of the III and V groups, this paper attempts to fill part of that gap by discussing the luminescence of exciton-doped complexes in germanium monocrystals alloyed with Sb, P, As donors and Ga, In acceptors. In the experiments, doping concentrations varied from 5·10¹³ to 5·10¹⁶/cm³, and the device used for recording the luminescence was the screen spectrowice used for recording the luminescence was the sensor. Most meter type DFS-12 with a photoresistive PbS as the sensor. Most of the measurements were made at a temperature of 4.2° K, attained of the measurements were made at a temperature of 4.2° K, attained by directly submerging the specimens in liquid helium, and an incandescent lamp or helium-neon laser was used to excite the luminescence. The authors, connected with the Semiconductor Institute

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USSR UDC 535.215.1

GRIGOR'YEV, R.V., NOVIKOV. B.V., SHESTAKOVA, T.V.

"Change In The Energy Spectrum Of The Trapping Centers Of CdS Crystals Exposed To Electron Bombardment"

Uch. zap. LGU (Scientific Annals Of Leningred State University), 1970, No 354, pp 91-96 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2B252)

Translation: The energy spectrum of the trapping centers in CdS crystals during change of their surface state on exposure to bombardment by electrons with energies of 3 kev is investigated by an analysis of the spectral distribution of photoconductivity and temperature distribution of thermostimulated conductivity. 2 ill. 12 ref. N.S.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"

UNCLASSIFIED PROCESSING DATE--20NGV70

TITLE-EFFECT OF VACUUM ULTRAVIOLET IRRADIATION ON THE SPECTRAL

DISTRIBUTION OF THE PHOTOCONDUCTIVITY OF CADMIUM SULFIDE SINGLE CRYSTALS

AUTHOR-(03)-GRIGOREV, V.R., NCVIKOV, E.V., CHEREDNICHENKO, A.YE.

CCUNTRY OF INFO--USSR

SOURCE--VESTIN. LENINGRAD. UNIV., FIZ., KHIM. 1970 (1), 75-9

DATE PUBLISHED----70

SUBJECT AREAS -- PHYSICS

TOPIC TAGS-VACUUM UV IRRADIATION, SPECTRAL DISTRIBUTION, PHOTOCONDUCTIVITY, CADMIUM SULFIDE, SINGLE CRYSTAL

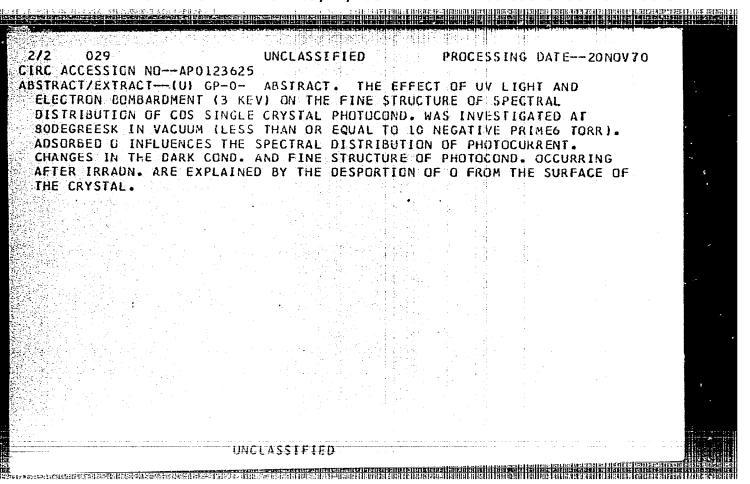
CONTROL MARKING-NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--1999/1836

STEP NO--UR/0054/70/000/001/0075/0079

CIRC ACCESSION NO--AP0123625

UNCLASSIFIED



Immunology

USSR

UDC 612.438.07.1: 612.6.02.017.1

NOVIKOV D K Vitebsk State Medical Institute

"In Vitro Development of Antigen-Sensitized Cells in the Thymus"

Moscow, Doklady Akademii Nauk SSSR, Vol 205, No 4, 1972, pp 966-968

Abstract: The role of the thymus in inducing and maintaining immunological competence in the lymphoid cells is discussed. Antigen sensitized cells developed in vitro in the lymphoid organs of mice after allotransplantation, xenotransplantation, or protein antigen immunization.

Male mice, 4-6 menths old who had undergone spinal skin grafts from mice of line C57B1/10 or from rats of the August line were immunized with live or decomposed antigenic cells from the lymph nodes, or with commerical protein preparations. BCG vaccine was administered intradermally to other mice. In vitro lymphocytolysis was brought about by the following method: to an antigenic solution made from the decomposed lymphoid cells of the donor line animals was added an equal volume of suspension made from lymphoid, spleen, or thymus cells of the mice recipients, or of intact animals. For control, cells of the test and control animals were incubated for one hour at 37°C in a medium containing no antigen. The dead (sensitized) and live cells

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NOVIKOV, D. K., Doklady Akademii Nauk SSSR, Vol 205, No 4, 1972, pp 966-968

were counted after adding Trypan Blue with eosin, and the cytoxic index was computed. The cells of the mice sensitized by the protein preparations were incubated with weak solutions of these proteins. For those sensitized with BCG, tuberculin, with an initial dilution of 1:20 was used.

After allotransplantation and xenotransplantation, as well as after protein and BCG immunization, antigen-sensitized cells were detected in the regional lymph nodes and spleen of the mice. This was indicated by damage to these cells in the presence of the specific (but none of the other) antigens which had apparently been adsorbed at their antibody-like receptors.

The tissue antigens showed cytotoxic action in a dilution of no higher than 1:160, the protein antigens at a concentration up to 0.05%. The same antigens did not show cytotoxic action in the cells of the lymph nodes, spleen, and thymus of the intact mice. In the thymus, antigen-sensitized cells appeared after allotransplantation and xenotransplantation and also after BCG immunization, but not after protein immunization (even with only a scant adjutant). Nor were lungworts found in the thymal cells sensitized to the simple proteins.

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NOVIKOV, D. K., Doklady Akademii Nauk SSSR, Vol 205, No 4, 1972, pp 966-968

Trauma during the skin transplant did not influence the appearance of antigensensitized cells in the thymus, since they were also detected after immunization with allogens from live and disintegrated cells.

Since the antigen-sensitized cells appeared in the regional lymph nodes earlier and in greater quantity than in the thymus, and were more numerous in the final stages, it is possible that these cells migrated to it from the lymph nodes. Apparently, absence of antigen-sensitized cells in the thymus after protein immunization, and the presence after BCG immunization, allotransplantation, and xenotransplantation, were caused by the chemical nature of the antigens.

Thus, after allotransplantation and xenotransplantation, as well as after the immunization of adult mice with allogenic cells or BCG vaccine, but not with simple protein vaccines, through a lymphocytolytic reaction in vitro, cells sensitized to the corresponding antigens were detected in the thymus cell suspension.

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NOVIKOV, D. K.

"Comparative Study of the Immune Reactions of Mice Towards the Allogenic and Xenogenic Skin Transplants"

Ontogenez (Ontogenesis), 1973, Vol 4, No 4, pp 348-358 (from RZh - Biologi-cheskaya Khimiya, No 22, Nov 73, Abstract No 1689)

Translation: Cytotoxins in blood serum and those adsorbed on allogenic and xenogenic skin transplants of mice were normally observed (starting at the 3rd day after transplantation) concurrently with delayed type sensitation manifested by direct and indirect in vitro inhibition test of spleen cell migration. The immunogenic response with the allogenic and xenogenic transplantation did not differ substantially by the time of the appearance of humoral antibodies, by the delayed sensitation, nor by their intensity. The dynamics of the antigen sensitized cells expressed by the lympholysis reaction and migration test was not identical. It has been assumed that the antigen sensitized cells observed in the lymphoid organs by the lympholysis method appear to be a special population of immune cells.

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UDC: 621.384.633

KOCHKIN, V. A., NOVIKOV, D. L. and ONISHCHENKO, L. M.

"Coherent Transversal Oscillation Frequency in an Electronic Model of Ring Cyclotron"

Moscow, Pribory i Tekhnika Eksperimenta, Zhurnal Akademii Nauk SSSR, No 1, Jan/Feb 72, pp 31-33

Abstract: The magnetic field of the electronic model of a ring cyclotron is produced by 13 concentric windings and by a spiral variation winding. The magnitude of field variation is obtained by varying the spacing between the turns of the variation winding.

The frequency of coherent transversal oscillations as a function of the field and radius are given by formulae (2) and (3) for the vertical and radial directions respectively. This frequency was determined experimentally by exciting the oscillations with a high-frequency electrostatic field and finding the resonant condition.

Graphs of the frequency versus radius are presented. The agreement between the the theoretical and experimental data is good.

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UDC 536.24:539.196.6

PETUKHOV, B. S., MAYDANIK, V. N., NOVIKOV, G. A.

"Experimental Study of Heat Transfer with Turbulent Flow of a Nonequilibrium Dissociating Gas in a Circular Pipe"

Moscow, Teplofizika Vysokikh Temperatur, Vol. 9, No. 2, Mar-Apr 71, p. 316-319.

Abstract: An experimental study is performed of heat transfer with turbulent flow of a nonequilibrium dissociating gas (nitrogen dioxide) in a circular pipe. The experimental data shows significant dependence of heat transfer on the rate of the dissociation reaction. A dependence is suggested for calculation of heat transfer considering the finite rate of the reaction.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"

USSR

UDO 536.24:532.542.4:535:338

PETUKHOV, B. S., MAYDANIK, V. N., and NOVIKOV, G. A.

"Experimental Investigation of Heat Transfer with Turbulent Flow through Round Tube of Gas Under Dissociation Equilibrium"

Moscow, Teplofizika Vysokikh Temperatur, Akademiya Nauk SSSR, Vol. 9, No 1, Jan-Feb 71, pp 116-123

Abstract: Experimental investigation of heat transfer with turbulent flow of nitrogen tetroxide was conducted. The gas was flowing through a round tube which was heated by electric current, the heat was transferred from the walls of the tube to the gas. The temperature of the tube wall was measured by thermocouples welded to the outside of the tube. The gas temperature was measured by thermocouples at the inlet and outlet of the tube. The relation between the gas temperature and the length of the tube was obtained by varying the length of the tube being heated.

The experiments were conducted with the range of pressures of 3 to 45 atmospheres, gas temperatures from 50 to 600°C, wall temperatures from 70 to 700°C, Reynolds number from 25,000 to 250,000.

The dissociation of nitrogen tetroxide occurs in two stages. At the 1/2

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PETUKHOV, B. S., et al., Teplofizika Vysokikh Temperatur, Akademiya Nauk SSSR, Vol 9, No 1, Jan-Feb 71, pp 116-123

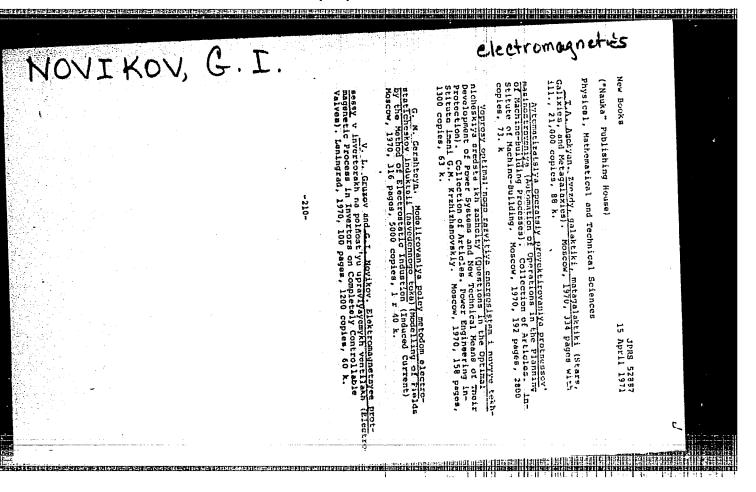
temperature from 20 to 180°C the nitrogen tetroxide dissociates into nitrogen dioxide, the proportion of the latter increases with the temperature. The change of such proportion occurs practically instantaneously with the change of temperature. Equilibrium condition is assumed to exist at teach point at this stage. At the temperatures from 150 to 900°C the nitrogen dioxide dissociates into nitrogen monoxide and oxygen, this reaction occurs slowly and it is assumed that the chemical composition of the gas in this stage does not change along the length of the tube.

Graphs of gas temperature, wall temperature and heat transfer coefficient along the length of the tube are given for both stages of dissociation

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"



1/2 016 UNCLASSIFIED PROCESSING DATE--300CT70

TITLE-ACOUSTIC PROPERTIES OF AZEOTROPIC MIXTURES -U-

AUTHOR-1031-GRECHKIN, V.I., NOVIKOV, G.I., NOZDREV, V.F.

CCUNTRY OF INFO--USSR

SOURCE-AKUST. ZH. 1970, 16(1), 145-7

DATE PUBLISHED 70

SUBJECT AREAS-CHEMISTRY, PHYSICS

TOPIC TAGS—ACOUSTIC PROPERTY, AZEOTROPIC MIXTURE, POPANOL, CYCLOHEXANOL, ULTRASONIC VELOCITY

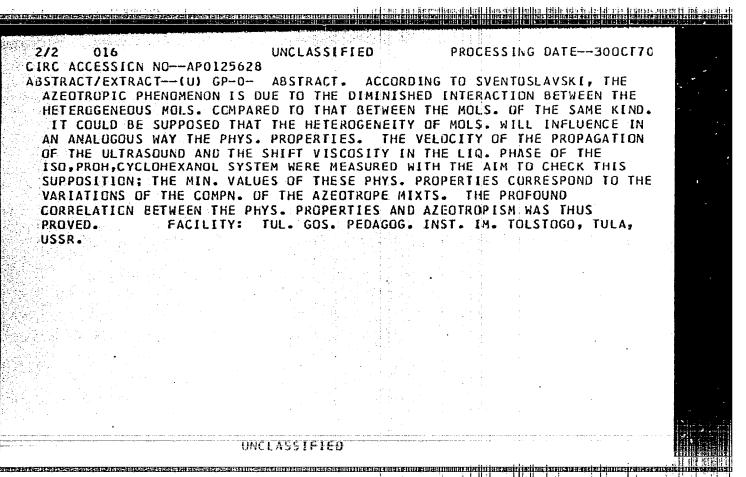
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DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--2000/2040

STEP NO-UR/0046/70/016/001/0145/0147

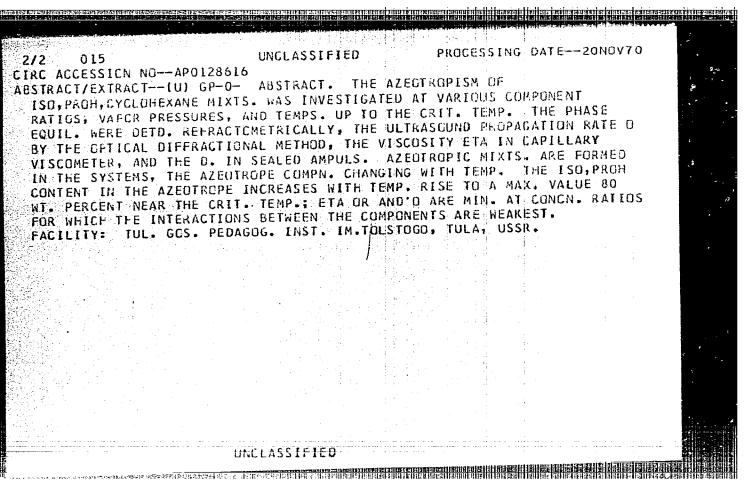
CIRC ACCESSION NO--APO125628

HNCLASSIFIED



PROCESSING DATE--20NOV70 1/2 015 UNCLASSIFIED TITLE--DETERMINATION OF THE COMPOSITION OF AN ISOPROPANOL CYCLOHEXANE AZECTROPIC SYSTEM IN A WIDE TEMPERATURE RANGE NEAR THE CRITICAL AUTHOR-103)-NCZDREV, V.F., GRECHKIN, V.I., NOVIKOV, G.I. CCUNTRY OF INFO--USSR SOURCE-ZH. FIZ. KHIM. 1970, 44(3), 819-20 DATE PUBLISHED ---- 70 SUBJECT AREAS-CHEMISTRY TOPIC TAGS--PROPANOL, CYCLOHEXANE, AZEGTROPE, PHASE EQUILIBRIUM, VAPOR PRESSURE, FLUID VISCOSITY CONTROL MARKING--NO RESTRICTIONS DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/0076/70/044/003/0819/0820 PROXY REEL/FRAME--3002/1198 CIRC ACCESSION NO--AP0128616 UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220019-1"



UNCLASSIFIED PROCESSING DATE--230CT70
TITLE--CORRELATION BETWEEN ENTHALPIES OF THE FORMATION AND DISSOLUTION OF
HALIDES AND THE STANDARD ELECTRODE POTENTIALS OF METALS -UAUTHOR-(03)-POLYACHENOK, L.D., NOVIKOV, G.I., POLYACHENOK, O.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 613-16

DATE PUBLISHED ---- 70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ENTHALPY, HALIDE, THERMODYNAMIC PROPERTY, ELECTRODE POTENTIAL

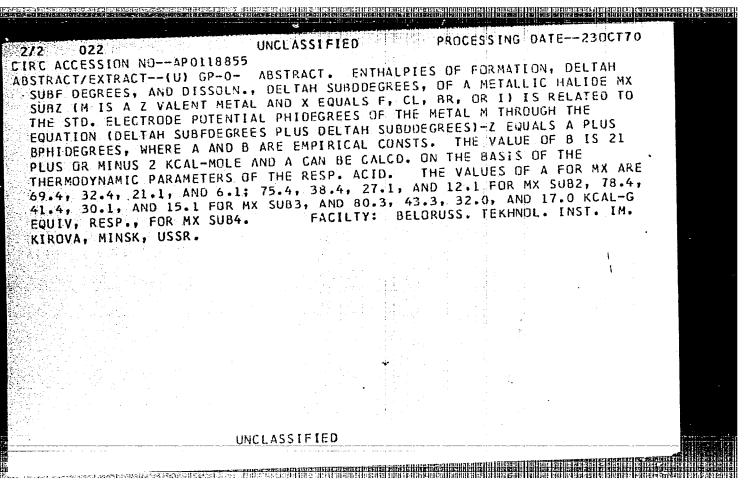
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--1996/1893

STEP NO--UR/0076/70/044/003/0613/0616

CIRC ACCESSION NO--APOL18855

UNCLASSIFIED



Acc. MF0034072 Abstracting Service: Ref. Code:

71278u Zinc chloride-gallium trichloride vapor-phase system. Komshilova. O. N.: Polyachegok, O. G.: Landson C. J. I. (Belorus. Tekhnol, Inst. im. Kirova, Minsk, USSR). Zh. Neog. Khim. 1970, 15(1), 291-4 (Russ). Satd. vapor pressure (p) of GaCl₃ was detd. and its value agrees with that obtained by W. Fisher and O. Juebermann (1936). The oblished equil, const. (R_p) of (GaCl₃) = 2GaCl₃ is: log K_p (mm) = 9.605 ± 0.051 - (4370 ± 34)/7(185-538°). The values of thermodynamic parameters at 298° K are (compd., AII' in kcal/mole, AS in e.u.): GaCh, —106 ± 2.3, 77.3 ± 1.5; GaCh, —233 ± 2.5, 122.5 ± 1.5. Analogous study was made for (Zn₂Cl₃) = 2ZnC₃ system. log p of ZnC₁ is 8.866 - 6032/T (510-700°) and log K_p of dimerization is 9.44 - 5000/T. Vapor pressure of ZnC₁-GaCl₃ system indicates absence of chem. interaction between the components in the vapor phase.

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REEL/FRAME